Nutritive Value and Voluntary Intake of Beef Cattle Females in Pampa Biome, Southern Brazil

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Introduction In the Brazilian State of Rio Grande do Sul , the Pampa Biome , is responsible for feeding about 90% of the cattle and sheep herds used for meat production . This is an area located where native pasture is composed of around 400 grasses and 150 legumes . Animal production is influence by the amount and quality of herbage intake , so voluntary herbage intake is considered the main limiting factor of productivity in grazing production systems (Baumont et al . , 2004) . A greater available herbage may increase both quantity and quality of forage intake , since the opportunity of selected grazing is enhanced . The aim of this work was to evaluate the effects of herbage intake and nutritive value of native pastures on beef heifers grazing under different feeding systems based on natural grasslands .

Materials and methods This study aimed to evaluate the nutritive value of a natural grassland managed with three feeding systems for beef cattle females : natural grassland submitted to previous resting period (NG) , natural grassland submitted to previous resting period+protein mineral salt supplement (NGS) and natural grassland oversowed with annual Italian Ryegrass , White Clover and Birdsfoot Trefoil (ING) . To estimate the dry matter voluntary intake (DMI) , chromium oxide was used as marker of faecal production . Three Brangus breed heifers , by replicate , were dosed orally , during 12 days in two periods : August and October , 2006 . Samples for nutritive value analysis were collected manually by hand-plucking method and they were analyzed for crude protein (CP) , neutral detergent fiber (NDF) ," in vitro" organic matter digestibility (IVOMD) . To measure average daily gain (ADG) , the animals were weighed every 28 days with 12 hours of fasting prior to each weighing . The experimental design was randomized block , with three replicates . Data was submitted to GLM Procedure and the mean separation was conducted using the Tukey Test ($P<0.05$) . The statistical software used was SAS version 8 .02 (2001) .

Results All parameters , except DMI , showed differences among treatments ($P<0.05$; Table 1) . The best results were observed in ING feeding system which provided pasture with the largest differences in nutritive value and ADG ($P<0.01$) : CP =0 .72 , IVOMD=0 .76 and NDF=-0 .69 . As all feeding systems had the same herbage allowance , 12 kg of DM to 100 kg of LW , inclusion of cultivated pasture species in ING treatment allowed the animals to have the highest nutritive value per kilogram of DM , resulting in ADG around 50% greater than the others feeding systems (NGS and NG) . In addition , the DMI was greater on August than on October ($P<0.05$) . The DMI , however , were higher than those normally reported on references for this animal category .

Table 1 *DM intake (%LW) , neutral detergent fiber (NDF , %) , crude protein (CP , %) , "in vitro" organic matter digestibility (IVOMD , %) and average daily gain (ADG , g .d^{-1}) of a natural grassland*

Treatment	DMI (%LW)	NDF (%)	CP (%)	IVOMD (%)	ADG (g .d^{-1})
ING	3 .98	58 .02 a*	20 .93 a	66 .60 a	885 a
NGS	3 .53	73 .28 b	16 .23 b	52 .10 b	408 b
NG	3 .33	73 .57 b	14 .97 b	53 .96 b	434 b
Period of the year					
August	4 .32 A	64 .77 A	16 .64	59 .78	0 .627 A
October	2 .91 B	71 .81 B	18 .12	55 .32	0 .524 B
Coeff . of variation (%)	14 .51	5 .77	8 .60	6 .86	11 .88

* Averages followed by different capital or lower case letters in same columns are different ($P<0.05$)

Conclusion The use of management techniques to improve the nutritive value of natural grasslands increases the animal performance without affecting the DM intake .

Reference

Baumont , R ; Cohen-Salmon , D . ; Prache , S . et al . 2004 . A mechanistic model of intake and grazing behaviour in sheep integrating sward architecture and animal decisions . *Animal Feed Science and Technology* , v .112 , p .5-28 .